TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

Fibers.

C. S. Grove, Jr., R. S. Casey, and J. L. Vodonik. *Ind. Eng. Chem. 48:* 1721-1730 (September, 1956).

A review of fiber developments and literature for the past year with an annotated bibliography of 78 references and 88 literature citations.

Heat effects on tensile properties of textiles.

J. W. Illingworth. *Fibres 17:* 285-288 (September, 1956).

Temperature effects, both reversible and irreversible, on the strength of synthetic and natural fibers and on tire cords, are discussed. Graphs. Tables. Photographs. 3 references.

NATURAL FIBERS A 1

Breaking strength of cotton fiber bundles.

C. Nanjundayya (Technological Laboratory, India). *(Letter to the editor). Textile Research J. 26:* 682-684 (September, 1956).

Data on the breaking strength of twisted and untwisted bundles of cotton fibers in relation to spinning quality are given. Tables. 4 references.

Technological reports on trade varieties of Indian cottons, 1955.

C. Nanjundayya. Indian Central Cotton Committee technological bulletin series A, no. 89. February, 1956. 87 p.

How weathering in the field reduces cotton in value.

L. E. Hessler (Texas Technological College). *Cotton Gin and Oil Mill Press 57:* 10, 29-30 (September 22, 1956).

Results of experiments conducted to evaluate the losses caused by depreciation in staple and grade of cotton due to prolonged field weathering. Data on physical and chemical properties are included. Graphs. Tables. 4 references.

The relation between the softness of handle of wool in the greasy and scoured states and its physical characteristics.

N. F. Roberts (Wool Textile Research Laboratories, Australia). *Textile Research J. 26:* 687-697 (September, 1956).

Three sets of samples were submitted to panels of wool buyers for appraisal of handle, and partial regression analyses were carried out to determine the association of their grading for handle with their mean diameter, coefficient of variation of diameter, number of crimps per inch, staple length, Young's modulus, yield, percentage of wax, percentage of suint, and percentage of dirt. The results suggest that softness of handle should be used more frequently in conjunction with the visual indication given by crimp for appraising fiber diameter. Tables. 5 references.

The influence of histological factors on the attack of the wool fiber by various reagents.

R. L. Elliott and J. B. Roberts. *J. Soc. Dyers Colourists 72:* 370-373 (August, 1956).

An investigation, including optical and electron microscope studies, of the sequence of attack of acids, alkalies, and oxidizing agents on wool has revealed significant variations in the stability of the histological components of the fiber. Details are given of a new rapid technique for obtaining fiber replicas for electron-microscopic examination. Microphotographs. 19 references.

Wool industry through the centuries: landmarks in progress.

H. Lemon (Wool Industries Research Assoc.). *Texture 3:* 95-99 (September, 1956).

The outstanding developments in the wool industry, e.g., scouring, dyeing, fiber structure, heat and moisture relations, shrinkproofing, and processing machinery, are briefly discussed. 17 references.

Wool research. Volume 2. Physical properties.

Wool Industries Research Assoc., Leeds, England, 1955. 234 p. $4.20.

This book has been written with an eye to the practical needs of the wool textile industry. Included are chapters on regain and swelling, water absorption and desorption, warmth of clothing, water repellency, elastic and plastic properties, electrical properties, friction, and color and optical properties. In the appendixes are a table giving the more important physical properties of the wool fiber and their dependence on regain, and a number of conversion tables.

Scottish woollens.

National Association of Scottish Woollen Manufacturers, Edinburgh, Scotland, 1956. 245 p. $5.00.

This book is made up of a series of pamphlets, issued under the same title from November, 1932 through February, 1956. The articles are written primarily for the layman and include information on the processing of wool, the various types of fabrics produced, fabric design, and the history of woolen and worsted manufacture in Scotland. Numerous illustrations.

Fiber-yielding Malvales of Bombay.

S. M. Betrabet. *J. Sci. and Ind. Research (India) 15B:* 146-148 (June, 1956).

The physical and chemical characteristics of the fibers of *Malachra capitata* Linn., *Abutilon indicum* Sweet, *Hibiscus tetraphyllus* Roxb., and *Urena lobata* Linn. compare favorably with those of jute. *M. capitata* and *A. indicum* fibers can be used as substitutes for jute, and *H. tetraphyllus* and *U. lobata* fibers in the manufacturing of inferior types of wrapping cloth, string, cord, etc. 8 references.

The quality of roselle fiber.

S. B. Bandyopadhyay and B. K. Bose. *J. Sci. and Ind. Research (India) 15B:* 149-152 (June, 1956).

Spinning trials on roselle fibers revealed that the yarns are poorer in quality than jute. Physical characters like density, rigidity, ballistic work of rupture, strength, and reed weight have significant correlations with yarn quality ratio, while rigidity and reed weight are significantly related to yarn irregularity. Higher rigidity may be cited as the cause of inferior spinnability of the fiber. The analysis of these results indicates some similarity of roselle fiber with *capsularis* jute. 8 references.

Some soilless cultured natural fibers.

J. Sholto-Douglas. *Fibres 17:* 247-252 (August, 1956).

The potential economic importance to the textile and cordage industries of growing cotton, jute, and flax by hydroponics is pointed out, and results of some experimental trials are described. 10 references.

Asbestos-reinforced low pressure laminates.

Textile Mfr. 82: 448-449, 452 (September, 1956).

Data on the properties of asbestos felt-phenolic resin laminates (Durestos, Pyrotex felts, and Novabestos papers) are summarized.

MAN-MADE FIBERS A 2

Man-made fibers: progress review and forecast, 1956-1957.

J. Campbell. *Modern Textiles Mag. 37:* 39-62 (September, 1956).

Data on the economic and technical progress of rayon, acetate, nylon, acrylics, polyesters, metallics, glass, Saran, Vicara, Teflon, and polyethylene are included. Addresses of yarn producer sales offices are given.

A review of developments in the properties, processing, and utilization of man-made fibers.

H. Ashton and J. Boulton (Courtaulds Ltd). *J. Textile Inst. 47:* P532-P566 (August, 1956).

This paper reviews: (1) the production and consumption of man-made fibers in categories of the older rayon yarns and staple fibers, and the newer polyamides, polyesters, and acrylics, with comparisons drawn between production, consumption, and prices for the years 1938 and 1954/55; (2) developments in the methods of manufacture of man-made fibers, and the increasing range and properties of fibrous materials available; (3) improvements and developments in techniques and machinery for processing man-made yarns and staples; (4) developments in dyeing and finishing of the man-made fibers and blends.

Developments in nylon 66 and 610 fibers.

H. C. H. Talliss (British Nylon Spinners Ltd). *J. Textile Inst. 47:* P582-P597 (August, 1956).

Some details of the methods involved and problems associated with the production of nylon yarns are described. The properties of three experimental 66 nylon yarns are given together with the properties of a yarn made from 610 polymer. Tables. 12 references.

The acrylic fibers: chemical fibers, problems, and predictions.

C. W. Bendigo (American Cyanamid Co.). *Can. Textile J. 73:* 66-68 (September 21, 1956).

The types of acrylic fibers possible and their potential markets are discussed.

Crylor acrylic fiber in spinning and weaving.

J. Duval. *Industrie Textile No. 834:* 343-348 (May, 1956); *in French.* Through *BCIRA 36:* 452 (1956).

Properties, identification in mixtures with other fibers, and behavior during spinning and weaving of Crylor polyacrylonitrile fiber are discussed. The Crylor fabrics are unshrinkable, nondeformable, and washable; they do not felt and dry quickly. In admixtures with wool, cellulose acetate, viscose (or cotton), the Crylor content should amount to 50, 60 and 70%, respectively, if the above properties are to be imparted to the fabric.

Vinyl yarns and fibers: their principal applications.

C. Froger. *Fibres 17:* 289-293 (September, 1956).

The manufacture of Rhovyl, the forms in which it is marketed, fabric properties, and applications (for clothing, industrial, and therapeutic uses) are reviewed.

YARN PRODUCTION B

The direct spinning of viscose rayon tows.

G. Waggett and C. Howden (Courtaulds Ltd). *J. Textile Inst. 47:* P598-P618 (August, 1956).

A brief review of the history and development of tow conversion techniques is followed by a consideration of the properties of tows used in the direct spinning of viscose rayon and of the resultant yarns. Machine variables and their effect on yarn properties are considered in detail on the basis of experimental results obtained by the use of a laboratory-constructed machine. Mention is made of the economics of the process as compared with the cotton spinning system. Graphs. Tables. 88 references.

Abbreviated spinning process in three- and four-roller spinning mills.

F. Teschler. *Textil- u. Faserstofftech. 6, No. 5:* 195-203 (1956); *in German.* Through *BCIRA 36:* 448 (1956).

A detailed survey is made of the most important abbreviated spinning methods and the economic aspects and quality of intermediate, and finished products, spun by the normal and the abbreviated spinning processes, are compared. Some recently developed abbreviated processes are outlined.

OPENING, PICKING, FIBER PREPARATION B 1

Automation in the blowroom: the new Tweedales and Smalley picker doffer.

Tweedales and Smalley Ltd. *Textile Wkly. 56:* 788-790 (September 21, 1956).

The operation of the Tweedales and Smalley automatic doffer, which eliminates completely the necessity for the stopping and starting of the picker after the completion of a lap, is described.

DRAWING AND ROVING B 3

Comparison between sliver and lap feed, and other innovations on the cotton draw frame.

E. Simon. *Textil- u. Faserstofftech. 6, No. 4:* 157-163 (1956); *in German.* Through *BCIRA 36:* 447 (1956).

The most important developments in the construction of cotton draw-frames are reviewed, special reference being made to the two-zone principle on the draw-frame, improved gripping of the fibers by using fluted metal top rollers, the use of spring-loading and its effect on sliver regularity, the effects of changing the number of roller-pairs in the draw-frame, and improved sliver regularity by using draw-frames with lap feed (Aristov method).

The Roberts draw frame.

L. Meierhofer. *Spinner u. Weber 74, No. 9:* 375, 377 (1956); *in German.* Through *BCIRA 36:* 447 (1956).

This double-apron draw-frame, comparable with modern high-draft systems, is similar to the Casablancas draw-frame but has, in place of a self-weighted top roller above the feed roller, a saddle-weighted pressure roller. Other characteristics are described.

Varnishing of top roller coverings.

K. Buschmann. *Spinner u. Weber 74, No. 12:* 497-500 (1956); *in German.* Through *BCIRA 36:* 447 (1956).

The problem of varnishing cylinder coverings of draw-frames is discussed and photomicrographs are reproduced to show how the grinding and varnishing of top-roller covering can be specifically controlled.

SPINNING, WINDING, TWISTING B 4

Spindle drafting of woolen slubbings.

J. Angus and J. G. Martindale. *Textile Research J. 26:* 698-716 (September, 1956).

An apparatus incorporating a single mule spindle was designed to draft woolen slubbings under a variety of conditions of twist and speed, and to measure the drafting forces generated. Experiments were done on this apparatus and on the mule itself. The way in which drafting force is generated was investigated for Cheviot and Saxony slubbings with varying speed, count, and twist. The way in which the thread irregularity changed during drafting was investigated simultaneously. On the basis of the results a two-phase hypothesis of fiber behavior has been advanced, in which it is suggested that fiber response during the first phase consists mainly of straightening and stretching. This is superseded by a second phase which is characterized by fiber slippage, often of a violent nature. It is suggested that this provides a new standpoint from which the process of spindle drafting can be considered, and that development of the experimental technique might provide ready means of investigating the importance of various fiber properties, and their modification, in the spinning process. Graphs. Tables.

End-breakage in cap spinning: precautions for reduction to a minimum.

Wool Record 90: 31-32 (September 6, 1956).

Features and adaptability of the woolen ringframe. Part 9.

J. A. B. Mitchell. *Textile Mfr. 82:* 464-466 (September, 1956).

Self-lubricating rings, anti-balloon plates, reciprocating spindle rail lifter mechanism, reciprocating lappets and balloon rings, variable speed spinning, and dual-motor drive are discussed.

Twenty-five inches is the width of Roberts Co. spinning frame.

Roberts Co. *Textile Bull. 82:* 163-164 (September, 1956).

Features of the Roberts 25, which is 11 to 14 inches narrower than the conventional frame, provides an increase of 25% in operating spindles in the same floor space, and similar reduction in costs of new construction for a given amount of spinning spindles.

YARNS B 5

The characterization of spinning quality.

J. F. Bogdan (North Carolina State College). *Textile Research J. 26:* 720-730 (September, 1956).

Four parameters characterizing spinning quality are described and determined for a set of yarn strength data by a method developed from one which was first proposed by F. T. Peirce. The skein break of any yarn number at any twist can be calculated for any fiber if these four parameters are known. Graphs. Tables. 4 references.

Elastic yarns in hosiery and knitted fabrics. Part 2.

W. E. Shinn (N. C. State College, School of Textiles). *Knitter 20:* 33-36 (September, 1956).

Concluding part to review of patents granted on the use of rubber yarns in knitgoods.

Fancy yarns.

M. Meyer. *Textil- u. Faserstofftech. 6, No. 5:* 212-214 (1956); *in German.* Through *BCIRA 36:* 448 (1956).

The main types of fancy yarns are described and illustrated, alone and in fabrics.

Textured filament yarns.

L. G. Ray. *J. Textile Inst. 47:* P567-P581 (August, 1956).

The morphology, methods of manufacture, yarn fabric properties, weaving, dyeing, and finishing of Agilon, Ban-Lon, Burmilized, Fluflon, Helanca, and Taslan are covered. 28 references.

Hibulk Acrilan.

S. J. Davis (Chemstrand Corp.). *Am. Dyestuff Reptr. 45:* P682-P684 (September 10, 1956).

The author discusses the hibulking principle, the commercial Acrilan Hibulk staple and tow which is available, Hibulk products produced on the Pacific Converter, and products made on the Turbo Stapler. The possibilities of application of Hibulk fibers in a variety of textile structures are also described.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

Warp sizing. Part 6. Materials for sizing (continued).

P. V. Seydel *Textile Ind. 120:* 194-202, 207-213 (October, 1956).

Damaging action of linseed oil sizes explained by chemical reaction in the oil.

L. Carnon. *Industrie Textile No. 834:* 353-355 (May, 1956); *in French.* Through *BCIRA 36:* 450 (1956).

Linseed oil preparations cause degradation of cellulosic fibers by oxidation, which is enhanced by catalytic effects due to the presence of metals and metal salts, by a weakly acid reaction of the sizing bath, by a moist and hot atmosphere, bleaching of the fibers prior to sizing, light, etc. Reactions taking place during oxidation of the linseed oil film and of the fibers coated with it are reviewed.

Effects of temperature on sizing.

Textile Mfr. 82: 470-473 (September, 1956).

The importance of temperature control in the cooking of sizes, on the slasher, and in drying sized warps is pointed out, and recommended temperatures are given for starch solutions, starch pastes, homogenized sizes, sizing starch from the Peruvian lily, gelatin sizes, sizing viscose, acetate, and spun rayon warps, and drying. 13 references.

The sizing of spun yarns containing man-made fibers spun on the cotton system.

E. Bradbury (British Cotton Industry Research Assoc.). *J. Textile Inst. 47:* P619-P637 (August, 1956).

Some specific problems associated with the sizing of spun yarns containing man-made fibers are discussed, and some possible solutions indicated. The sizing of blends is briefly discussed. Graphs. Tables. 5 references.

Sizing low-twist filament yarns.

Imperial Chemical Industries Ltd. *Textile Wkly. 56:* 644 (September 7, 1956).

The application of Synsize W to nylon and viscose rayon warps, the drying conditions for the sized warps, and the removal of Synsize W are outlined.

Sizing machines adapted to requirements.

A. Gasser. *Spinner u. Weber 74, Nos. 10/11:* 455-458 (1956); *in German.* Through *BCIRA 36:* 450 (1956).

The development of sizing machines since 1850 is reviewed, with special reference to those constructed by Rüti AG.

Doing away with cop skewering.

L. Moureau. *Industrie Textile No. 834:* 356-357 (May, 1956); *in French.* Through *BCIRA 36:* 450 (1956).

The device described (developed by L. Barreau of the S.E.M.A.T.) consists of a spindle on which a cop can be placed for winding and which, at the same time, is directly mounted and maintained in the shuttle, thus playing a treble role of a weft pirn winder, a weft cop, and a shuttle peg, and making cop skewering unnecessary.

WEAVING C 2

Braking the warp beam by compressed air.

A. Chevenez. *Industrie Textile No. 832:* 196-197 (March, 1956); *in French.* Through *BCIRA 36:* 451 (1956).

The device described consists of a brake ring whose brake shoes are operated by a cylinder fed with compressed air, the pressure in the cylinder being controlled by an adjustable pressure reducer.

Our means of protection against flying out of shuttles.

J. P. Duvignon. *Industrie Textile No. 832:* 191-193 (March, 1956); *in French.* Through *BCIRA 36:* 451 (1956).

Two new shuttle guards are described and illustrated.

Electromagnetic shuttle race.

R. Dehors. *Industrie Textile No. 833:* 261-265 (April, 1956); *in French.* Through *BCIRA 36:* 451 (1956).

The author reports experimental results referring to the problem of propelling missiles by means of mechanical impulses from an electromagnet, and describes in detail a similar device which can be fitted on a loom to replace the mechanical shuttle race, which has many disadvantages. Reference is also made to a system of two thyratrons as a means for generating impulses.

The problem of selvage formation in the weaving process without bobbin shuttle.

H. Mzyk. *Textil- u. Faserstofftech. 6, No. 4:* 166-171 (1956); *in German.* Through *BCIRA 36:* 451 (1956).

Assuming that, when using circular gripper-shuttle and velvet looms, the insertion of the weft material differs from the usual process with bobbin shuttles, the author discusses various possibilities of obtaining a firm selvage: the gauze selvage, selvage formation during insertion of weft loops, selvage formation by gumming, etc.

Photoelectric weft feeler development.

Skinner's Silk & Rayon Record 30: 910-911 (September, 1956).

The article discusses and illustrates the plunger feeler, side-swipe feeler, electrical contact feeler,

photoelectric feeler for perforated pirns, photoelectric feeler for reflected light, and the Loepfe feeler in which the principle of reverse reflection is utilized. See *TTD 13:* 463 (1956).

Prevention of stripey fabrics.

British Celanese Ltd. *Textile Wkly. 56:* 736-737 (September 14, 1956).

Advice on the control and elimination of reed marks.

KNITTING C 3

A new range of circular knitters.

A. Kirkland and Co. Ltd. *Hosiery Times 29:* 19-25 (September, 1956).

Features of the Riblock, for the manufacture of outerwear fabrics on a fine rib basis, and Flexi-mesh, a specialized underwear open-work type of machine, are described and illustrated. The modification of other machines to increase productivity and standardize cam design is briefly discussed.

Modern hose patterns.

W. Davis. *Hosiery Times 29:* 53-61 (September, 1956).

Methods of designing stripe patterns on the rib hose machine are discussed and illustrated.

Hose examining.

B. P. Hall (Textiles) Ltd. *Textile Wkly. 56:* 574-575 (August 31, 1956).

Features of the Viscount automatic hose examining machine which expands, turns, counts, and stacks.

How to apply new stretch standards.

W. H. Slane, Jr. (Slane Hosiery Mills). *Hosiery Underwear Rev. 39:* 86-87, 110-111 (October, 1956).

Mill procedure used in converting minimum stretch sock standards developed by the National Association of Hosiery Manufacturers into practice.

Processing and properties of knitted stretch fabrics.

D. L. Munden and M. W. A. Fletcher (Hosiery and Allied Trades Research Assoc.). *J. Textile Inst. 47:* P638-P669 (August, 1956).

A general review is made of the methods of manufacture and physical properties of the following types of stretch yarn: crimped nylon, crinkle, stretch, and Ban-Lon. A general description and definitions of the physical properties of fabrics knitted from these yarns are also given. The effect of knitting stiffness (expressed in terms of yarn length per stitch) on the relaxed size, extensibility, recovery, area density, and bulk of fabrics knitted from the above yarns is shown, and the interaction of yarn and fabric heat-setting treatments is discussed. The results given emphasize the necessity of accurate control of knitting stiffness and temperatures of yarn and fabric heat-setting treatments, if the quality of the finished fabric is to be maintained constant. Photographs. Graphs. Tables. 20 references.

Faults in knitted fabrics. Part 3. Change of shade.

J. Lomax. *Hosiery Trade J. 63:* 77-79 (September, 1956).

FABRICS C 4

The fitting of woven cloth to surfaces.

C. Mack and H. M. Taylor (Shirley Inst.). *J. Textile Inst. 47:* T477-T488 (September, 1956); *Shirley Inst. Mem. 29:* 75-86 (June, 1956).

The possible configurations adopted by woven cloth when fitted to various surfaces are discussed in this paper. A general type of fitting (involving two parameters) to surfaces of revolution is given together with some photographic illustrations. The differential equations of fitting to any surface are derived, and it is found that the general type of fitting is the only type which is expressible by formulas. Photographs. 3 references.

The relationship between the structural geometry of a textile fabric and its physical properties. Part 6. Nomographic solution of the geometric relationships in cloth geometry.

D. P. Adams, E. R. Schwarz, and S. Backer (Mass. Inst. of Technology). *Textile Research J. 26:* 653-665 (September, 1956).

A simplified nomograph has been designed to permit rapid solution of Peirce's geometric relationships for plain weaves. To illustrate use of the nomograph, several practical problems in cloth structure are presented and worked out in some detail. Advantages and limitations of the nomograph are discussed. 3 references.

The surface regularity of fabrics with several thicknesses.

P. Windel. *Industrie Textile No. 834:* 357-359 (May, 1956); *in French.* Through *BCIRA 36:* 452 (1956).

In these fabrics, the various layers are woven at the same time and joined together by connecting threads parallel to the warp. Principles of

the weaving technique and the characteristics of the fabrics are described.

The construction and finishing of fabrics based on Terylene polyester fiber in relation to crease-recovery.

N. M. Mims and E. D. Rossiter. *J. Textile Inst. 47:* P708-P723 (August, 1956).

A study is made of some aspects of the relative crease-recovery of fabrics containing Terylene polyester fiber, wool, and blends of the two fibers. It is shown that wool is primarily affected in its crease-recovery by the presence of moisture, while Terylene fiber is subject to non-recoverable deformation imposed at high temperatures. The influence of structural and finishing variables on the crease-recovery of fabrics containing Terylene fiber are described. Crease-recovery is shown to be affected by total fabric sett and, for fabrics made from filament yarn, by twist and float length. No large differences are observed when the time and conditions of treatment on worsted and woolen finishing machinery are modified, but recovery is shown to depend upon the temperature at which fabric is heat-set. Tables. Graphs. 8 references.

Design in woven structure. Part 44. Stripe weaves (continued).

D. C. Snowden. *Wool Rev. 29:* 35 (September, 1956).

Properties and serviceability of selected household and clothing fabrics.

H. M. Fletcher and S. H. Roberts. Wash., U. S. Agricultural Research Service, 1956. 126 p. Agriculture information bulletin, no. 147. Available from Superintendent of Documents, Washington 25, D. C. 60¢.

Rayon staple in overall fabrics.

C. P. Tattersfield and J. Boyd. *Textiles in Ind. 1:* 9-10 (June, 1956).

In protective clothing, cotton/Fibro blends and cotton/nylon blends are being adopted for general purposes, and fabrics made from Terylene and Courlene are being used where resistance to chemicals and solvents is required. Of these, from a quantitative point of view, the cotton/Fibro blend is probably the most important.

Some defects in rayon crepes.

J. Kunzel. *Textile Merc. 135:* 340-343 (August 31, 1956).

The causes and prevention of snarls and crinkles in rayon crepe yarns, and of slack ends and selvage loops in cloth are discussed.

The carpet annual: 1955-56.

H. F. Tysser. London, British-Continental Trade Press, Ltd., 1956. 381 p. $2.80.

This volume comprises a brief review of technical developments, a well-illustrated section on carpet design, a survey of world trade, and a directory covering raw materials, machinery and supplies, manufacturers, wholesalers and importers, trade names, and a buyer's guide.

Developments in methods of carpet manufacture.

G. B. Angus. *J. Textile Inst. 47:* P670-P684 (August, 1956).

This paper discusses advances made in the manufacture of the traditional type of carpet, including mention of materials, testing, and prevention of sorting. Technical developments introduced in mechanical handling, spinning, preparation, weaving, dyeing, and finishing are described. New types of backing or underlay, and methods of making needleloom and tufted carpeting are also briefly described.

Speeding up tufted carpet production.

Tufting Machinery Ltd. *Textile Wkly. 56:* 810, 815 (September 21, 1956).

Description of new machine for spreading and drying of backing compounds. Photograph.

Woolen traveling rugs.

J. McIsaac. *Wool Rev. 29:* 28-29 (September, 1956).

Types of blankets and methods of weaving them are briefly covered.

High pile fur fabrics demand beyond production.

Am. Textile Reptr. 70: 17-18, 43-45 (September 13, 1956).

The article reviews the various types of simulated fur fabrics available, the general methods of their manufacture and finishing, and their commercial potentialities.

Development of chemically resistant, high temperature protective fabric.

A. S. Kidwell. Connecticut Hard Rubber Co., New Haven, Conn., January, 1956. 88 p. Order from Office of Technical Services, Washington 25, D. C. $2.25. PB 121 212.

A coated fabric comprising a thin coating of aluminum-pigmented poly-chlorotrifluoroethylene on glass fabric backed with a low-density silicone rubber sponge, and having an overall thickness of 0.070 inch, was developed for use in protective clothing for personnel in danger of being exposed briefly to a chemical fire at temperatures

up to 1000° F. The fabric shows excellent resistance to fuming nitric acid and other oxidizers and fuels, is flexible and useful over a temperature range of —80° F. to +390° F.

Dynel overlays for low pressure laminates: protection from chemicals, abrasion, and weathering.

Textiles in Ind. 1: 7-8 (June, 1956).

The process of improving the resistance of low pressure glass-reinforced laminates to chemicals, abrasion, and weathering utilizes a surface veil or overlay of Dynel fabric on either or both sides of laminates. Test results and applications are included.

An air filter fabric.

P. Nivel. *Industrie Textile No. 833:* 284 (April, 1956); *in French.* Through *BCIRA 36:* 452 (1956).

The new woven or knitted fabric consists of at least one thread of a single, continuous, relatively thick plastic filament (with round or oval cross section) and a thinner plastic thread composed of elementary fibers which may form a cabled or spongy thread. The filter material is claimed to have a high dust-absorption ability.

Paper fabrics a new competitor for textiles.

Kimberly-Clark Corp. *Am. Textile Reptr. 70:* 15, 40-41 (September 13, 1956).

The properties and end-uses of K-2000 (multilayer paper fabric) are discussed.

FINISHING AND CHEMICAL PROCESSING D

Processing heavy cotton fabrics.

Dyer 116: 349-350 (August 31, 1956).

Results of du Pont research on the processing of heavy cottons, such as twills, drills, jeans, poplins, sateens, etc., including details of bleaching, mercerizing, and dyeing.

Moisture control by static.

Drytester Ltd. (Switzerland). *Skinner's Silk & Rayon Record 30:* 936 (September, 1956).

The Drytester Humidocontrol instrument for measuring the moisture content of textile materials during and after wet processing takes advantage of the fact that during the drying of textile materials an electrostatic charge is formed which is greatest for dry materials and least for wet. Diagrams.

Better textures in nylon carpets.

Industrial Rayon Corp. *Modern Textiles Mag. 37:* 33-34 (September, 1956).

Three methods of applying the new IRC method of heat setting in mills processing carpet yarn spun from IRC's new nylon staple to achieve a variety of textured effects, including saxony, hard twist, and frieze effects.

Active trade names of textile finishes.

Daily News Record No. 199: 26, 34-44 (October 11, 1956).

Chart listing trade names, manufacturers, fibers to which the finish can be applied, and properties imparted.

CHEMICAL PROCESSES D 1

Physical properties of cotton reacted with beta-propiolactone.

E. H. Nott and J. N. Grant (Southern Regional Research Laboratory). *Textile Research J. 26:* 673-680 (September, 1956).

The changes in physical properties of fibers and yarns, attained by the xylene reflux and alkali methods of reaction, for add-ons of beta-propiolactone ranging from 0 to 36.9% were determined. In most instances the reaction alters the physical properties of both fibers and yarns, the changes being dependent upon the pretreatment, methods of reaction, and per cent add-on of beta-propiolactone. Tables. Graphs. Electron micrographs. 15 references.

Investigation of selected chemically altered cotton materials.

E. L. Hamilton. U. S. Air Force. Air Research and Development Command. Wright Air Development Center. Materials Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio, February, 1956. 26 p. Order from Office of Technical Services, Washington 25, D. C. 75¢. PB 121 215.

Acetylated and cyanoethylated cotton have been evaluated. Preliminary tests showed that acetylated cotton provided different degrees of fungus resistance as the amount of alteration varied. Work was initiated to find the level of alteration by acetylation and cyanoethylation which gave adequate resistance to fungi, yet retained the desired physical properties. Preliminary testing of cyanoethylated cotton in 3.6 ounce weight fabric with a 3.6% nitrogen content showed that satisfactory fungus resistance could be obtained by cyanoethylation. Appendix I. Test methods. Appendix II. Analytical methods.

Optical bleaching.

P. Rochas. *Bull. Inst. Textile France No. 58:* 27-47 (February, 1956); *in French.* Through *BCIRA 36:* 455 (1956).

Photocolorimetric methods for testing the mechanism of optical bleaching agents, their lightfastness, fluorescence, etc., are reviewed and it is shown that, in optically-bleached fabrics, the whiteness varies with the ultra-violet content in the light source used. The improvements in the optical bleaching agents produced at present are pointed out, the fact that fluorescent agents are still only bluing agents for improving the whiteness of already satisfactory white textile materials being stressed.

New developments in peroxide bleaching.

J. L. Moore and T. E. Bell (E. I. du Pont de Nemours & Co., Inc.). *Am Dyestuff Reptr. 45:* P679-P681 (September 10, 1956).

The single-stage continuous bleaching process is discussed at length, and single-stage kier bleach, non-silicate bleach, and new equipment are briefly covered.

The photochemical oxidation of wool in the presence of fluorescent compounds.

D. R. Graham and K. W. Statham. *J. Soc. Dyers Colourists 72:* 434-438 (September, 1956).

A study has been made of the action of sunlight on wool treated with fluorescent brightening agents. The discoloration which occurs is due to oxidation of the wool and appears to be independent of the fluorescent agent used. There is considerable evidence to show that oxidation of the amino acid tryptophan is the main color-producing reaction. 23 references.

Shrink-resisting wool: some novel features and the description of a new process.

A. N. Davidson and R. Preston (Wool Industries Research Assoc.). *J. Textile Inst. 47:* P685-P707 (August, 1956).

A brief review of methods used in the production of shrink-resisting wool and of the effects of the processes on the properties of wool and fibers mixed with it is given. Reasons are advanced for considering shrink-resisting wool as a new man-modified fiber, and some novel effects that can be produced by their use are described. Experiments leading to the development of a new shrink-resist process are noted. Tables. 29 references.

The composition of suint: a preliminary communication.

T. Green and R. Preston (Wool Industries Research Assoc.). *(Letter to the editor). J. Textile Inst. 47:* T497-T498 (September, 1956).

Wash and wear finishes on cotton fabrics.

H. C. Borghetty (Rohm and Haas Co.). *Am. Dyestuff Reptr. 45:* P733-P735 (September 24, 1956).

A survey of developments of the last few years.

Wash-and-wear cottons.

E. Abrams (Southern Research Institute). *Textile Ind. 120:* 99-100 (September, 1956).

See *TTD 13:* 358 (1956).

Finishing of fabrics containing Terylene polyester staple fiber.

N. M. Mims (Imperial Chemical Industries Ltd.). *J. Soc. Dyers Colourists 72:* 426-430 (September, 1956).

This paper describes some of the differences betwen the properties of Terylene polyester fiber and wool, discusses how these differences manifest themselves in finishing, and outlines the response to finishing treatments of fabrics containing Terylene staple fiber, both by itself and blended with botany wool. Graphs. Tables. Photographs.

Acrylic resins for back-sizing upholstery fabrics.

J. T. Taylor. *Textile Age 20:* 18-22 (September, 1956).

The advantages and methods of application of acrylic resin emulsions combined with fillers such as clay or carbonate to produce low-cost, lightweight finishes, or without fillers to create a clear backing.

Water repellent thread for military items.

E. B. Frederick and W. Zagieboylo. U. S. Army. Quartermaster Research and Development Command. Textile, Clothing and Footwear Division, Quartermaster Research and Development Center, Natick, Mass., June, 1955. 25 p. Order from Office of Technical Services, Washington 25, D. C. 75¢. PB 121 114.

Studies were conducted to determine whether cotton sewing thread could be successfully treated for water repellency on a production basis, and then sewed in normal scale production of garments. This treatment was applied to thread used in laboratory studies, under pilot-plant conditions, in production trials by industry, and tested in the laboratory and in a field evaluation of garments sewed with this thread.

Chemical finishes for glass fiber.

P. Erickson and I. Silver. U. S. Naval Ordnance Laboratory, White Oak, Md., April, 1953. 29 p. Order from Office of Technical Services, Washington 25, D. C. 75¢. PB 121 165.

Twenty chemical finishes for glass fibers have been synthesized and evaluated in a program for the development of superior strength properties of resin-glass laminates under dry and wet conditions. Several theories are discussed concerning the mechanism of attaching the finish to the glass, and the reaction of function groups in the finish with polyester and epoxy resins.

Universal type chemical finishes for glass fibers used in reinforced plastics.

P. Erickson, I. Silver, and H. A. Perry, Jr. U. S. Naval Ordnance Laboratory, White Oak, Md., October, 1954. 17 p. Order from Office of Technical Services, Washington 25, D. C. 50¢. PB 121 172.

Five new chlorosilane-type finishes for glass fibers, used in reinforced plastics, have been synthesized and evaluated. Four of these have been found to exhibit general purpose characteristics, leading to outstanding dry and wet flexural strength properties in glass fabric laminates with polyester, epoxy, and phenolic resins.

Effect of laundering on shirts.

G. H. Johnson (Am. Inst. of Laundering). *(Letter to the editor). Textile Research J. 26:* 680-681 (September, 1956).

Observations based on 34 years of washroom-textile experience with 3000 laundries are summarized in answer to Grimes and Werman letter *TTD 13:* 137 (1956).

Effect of laundering on shirts.

M. A. Grimes and C. A. Werman (Texas Agri. Experiment Station). *(Letter to the editor). Textile Research J. 26:* 681 (September, 1956).

DYEING AND PRINTING D 2

Affinities of vat dyes.

W. J. De Cort. *J. Soc. Dyers Colourists 72:* 439 (September, 1956).

Some remarks on the degradation of dyeings in inclement weather.

J. P. Niederhauser. *Can. Textile J. 73:* 47-53 (September 7, 1956).

Observations on the fading of 38 samples of cotton and wool dyed with different classes of colors which were exposed to natural weather and Weather-O-Meter for varying times. Tables. 6 references.

The dynamic dye and pigment industry.

D. Randall and R. Berger. *Chem. Week 79:* 47-69 (September 22, 1956).

This report on the dyestuff industry includes: statistics on production, sales, and costs for pigments and major classes of dyes; research trends for textile and non-textile applications; a table of registered trademarks; and a listing of pigment manufacturers.

Sir William Henry Perkin.

S. M. Edelstein (Dexter Chemical Corp.). *Am. Dyestuff Reptr. 45:* P598-P604 (August 27, 1956).

The life and work of Sir William Henry Perkin (1838-1907) is reviewed. An extensive bibliography on all aspects of Perkin's work is included. Photographs.

Faster method for dyeing wool.

A. A. Panicheva and B. M. Bogoslovskii. *Tekstil. Prom. 16, No. 5:* 36-38 (1956). Through *Chem. Abstracts 50:* 12484-12485 (1956).

A new method of dyeing wool by reducing its dyeing time from the currently used 3-5 hours to 10-20 minutes and decreasing the temperature of dyeing, is recommended. It is based on the absorption by the wool of the H_2O-insoluble mordant dyes (alizarin and other anthraquinone-type dyes). In the first stage, the physical stage, of this method, the wetted fiber is treated for 5-10 minutes at 20-23°C with an aqueous suspension of the dye; in the second, the chemical stage, the fiber is boiled for 5-10 minutes in an acidified $K_2Cr_2O_7$.

Coloring of furs with acid dyes.

H. Thuemmel. *Dyestuffs 41:* 175-179 (September, 1956).

General procedures for scouring, retanning alum tanned skins, tinting, and acid dyeing furs for decorative purposes.

How to dye Acrilan-wool blends.

W. H. Hindle and T. H. Guion (Chemstrand Corp.). *Modern Textiles Mag. 37:* 65-68, 72 (September, 1956).

A theoretical discussion of the methods of dyeing Acrilan-wool unions is followed by a description of practical details of their application.

Dyeing Orlon and Orlon blends in the hosiery dye house.

H. White (Lee Hosiery Finishers, Inc.). *Hosiery Underwear Rev. 39:* 101-102 (October, 1956).

The classes of dyes used on Orlon are discussed, and procedures and formulas for dyeing Orlon and Orlon blends, with wool, cotton, and nylon are given.

The dyeing of new yarns and fabrics.

I. M. S. Walls (Imperial Chemical Industries Ltd.). *J. Textile Inst. 47:* P728-P734 (August, 1956).

The dyeing properties of the new synthetic fibers are reviewed under selection of dyes and the application of dyes, and new techniques such as carrier dyeing and high-temperature dyeing are briefly discussed. The dyeing of novel yarns and fabrics made from these fibers is described, particular emphasis being placed on the precautions to be taken during dyeing to maintain the novel effects which have been inserted in the goods.

Liquor flow reversal in dyeing machines.

Freeman Taylor Machines Ltd. *Textile Wkly. 56:* 813-815 (September 21, 1956).

Liquor flow reversals in certain types of dyeing machines are brought under fully automatic control by the use of a new electrical time cycle device described in this article. Photographs.

Recent advances in the chemistry of colouring matters.

Chemical Society, Burlington House, London, W. 1., England, 1956. 87 p. $2.10.

Steric effects in azo- and indigo dyes, by W. R. Brode; *Some aspects of cis-trans-isomerism in azo-dyes,* by R. H. Peters and E. Atherton; *The synthesis of azaporphins and related macrocycles,* by J. A. Elvidge; *Synthetic carotenoids,* by O. Isler and others; *Modern theories of color,* by M. J. S. Dewar. These papers are from a symposium held at the Imperial College of Science and Technology, London, on January 19, 1956.

New dyes achieve long-sought target.

Imperial Chemical Industries Ltd. *Textile Wkly. 56:* 667 (September 7, 1956); 738-739 (September 14, 1956); *Dyer 116:* 423-424 (September 14, 1956).

The Procion dyestuffs achieve their high wet fastness by formation of a chemical bond between dye and fiber. Their reaction with cellulosic fibers proceeds rapidly under alkaline conditions which permits them to be applied by an entirely novel cold dyeing technique in conventional dyeing machinery, and they may be applied to polyamide fibers by normal techniques. In printing, a technique is available in which fixation is achieved without steaming, the printed fabric (with no sodium bicarbonate in the print paste) being padded through an alkaline solution and dried, preferably on drying cylinders.

Dyestuffs of the ancients.

N. S. Knaggs (Hilton-Davis Chemical Co.). *Am. Dyestuff Reptr. 45:* P595-P597 (August 27, 1956).

Review of the highlights of the history of natural dyes with a brief description of the 24 considered most important.

Flocculation of phthalocyanine blue.

E. G. Shur. *Interchem. Rev. 15:* 31-39 (Summer, 1956).

Results of a study on the effect of changes in the type and polarity of the continuous liquid phase upon the flocculative tendencies of the solid discontinuous phase—copper phthalocyanine blue. Diagrams. Graphs. 21 references.

Vinyl printing.

G. F. Goldstein. *Interchem. Rev. 15:* 40-46 (Summer, 1956).

Description of the processes of gravure printing, surface printing, screen printing, and embossing and valley printing for decorating vinyl films and sheeting. Photographs.

Eight-color fabric printing machine.

VEB Textilmaschinenbau. *Textile Wkly. 56:* 740 (September 14, 1956).

The conventional large central squeezing cylinder has been replaced by small units for every printing cylinder, so that the machine is, in effect, a series of independent printing units set side by side. Other features of the machine are described. Photograph.

MECHANICAL PROCESSES D 3

The shrinkage of fabrics in length.

C. Parret. *Industrie Textile No. 833:* 289-291 (April, 1956); *in French.* Through *BCIRA 36:* 458 (1956).

The new process described makes it possible to shrink the fabric in length gradually, without altering its appearance, that is, without producing small pleats and other defects caused, especially in stiff fabrics, by other shrinking processes.

High speed singeing.

E. Turner and Co. (Salford) Ltd. *Dyer 116:* 375-378 (August 31, 1956).

Features of the Parex range of singeing machinery. Photograph. Diagram.

DRYING D 4

Drying of cheeses.

P. F. Mohr. *Industrie Textile No. 832:* 214 (March, 1956); *in French.* Through *BCIRA 36:* 458 (1956).

The Mohr drier described has a cylindrical form and takes up very little room. It is very economical with regard to energy consumption and, since it is provided with a completely automatic temperature control, it is possible to adapt it to the type of material to be dried. The system of alternating air-current circulation permits uniform treatment and maximum care of the material.

Clips and needle links for stretching fabrics.

R. Günther. *Spinner u. Weber 74, No. 8:* 340-342; *No. 9:* 380-382; *Nos. 10-11:* 460-464 (1956); *in German.* Through *BCIRA 36:* 458 (1956).

The development of fabric-stretching devices for drying machines is reviewed, with reference to simple and self-adjusting clips, simple needles and those with a holding device for the material, and combinations of clip and needle. 55 illustrations.

TESTING AND MEASUREMENT E

Probability and operational research.

F. Benson. *Research 9:* 329-334 (September, 1956).

In this article, the author shows by means of examples some of the ways in which probability models can be used to solve executive problems in industry, including textile examples. 8 references.

FIBERS E 1

A fiber length tester with automatic punched-card registration.

J. H. Wakelin, H. W. Lambert, and D. J. Montgomery (Textile Research Inst.). *Textile Research J. 26:* 665-672 (September, 1956).

The principal advantage of the fiber length tester is the automatic registration of data on punched cards. The tester has been found satisfactory for measuring wool fibers withdrawn from raw wool staples, card sliver, top, roving, and yarn; and for measuring cotton fibers withdrawn at similar stages in processing. In measuring a number average mean length of extended fibers, it may provide a more meaningful result for correlation with processing behavior, since it measures the actual length of each fiber tested rather than a length based on a weight average. Photograph. Diagrams. Tables. Graphs. 12 references.

Contribution to the study on changes in wool. New studies concerning the swelling test in ammoniacal potash.

C. Shirle, G. Gianola and O. Meyer. *Bull. Inst. Textile France No. 58:* 57-68 (February, 1956); *in French.* Through *BCIRA 36:* 462 (1956).

The swelling test in ammoniacal potash, carried out by the technique described, is of interest when studying the changes in dyed wool of which only very small quantities are available.

Improved method for bulk compression of staple fibers.

S. M. Fok and T. G. Finzel (Industrial Rayon Corp.). *(Letter to the editor). Textile Research J. 26:* 684-686 (September, 1956).

An improved piston cup assembly, which has proved satisfactory for investigations on the bulk compression properties of both synthetic and natural crimped staple fibers, is described. Results for immediate recovery, repeated compression, and delayed recovery tests are given.

Identification of synthetic fibers by micro fusion methods.

D. G. Grabar and R. Haessly (Industrial Rayon Corp.). *Anal. Chem. 28:* 1586-1589 (October, 1956).

A scheme for the identification of synthetic fibers by the use of micro fusion methods is based upon the melting point of the fiber, the eutectic temperature of the fiber with *p*-nitrophenol as a reference compound, and the characteristic behavior observed during the heating and cooling of the fibers. Observations are made using a hot stage on a polarizing microscope. Reproducible melting points are obtained by using a silicone oil as a mounting liquid for the fibers to exclude air from the fibers while heating and to improve the microscopic image. Tabulated micro fusion data are given for thirteen synthetic fibers. 5 references.

YARNS E 2

A review of the measures of sliver, roving, and yarn irregularity: an improved suggested measure.

A. C. Parikh. *Indian Textile J. 66:* 617-620 (July, 1956).

The statistical measures used to express irregularity, e.g., the coefficient of variation, the index of irregularity, the correlogram, and the variance-length curve, are critically discussed, and a new measure is suggested, the excess coefficient of variation. 9 references.

Devices for controlling the regularity and their usefulness in spinning.

A. Martin. *Industrie Textile No. 833:* 251-255 (April, 1956); *in French.* Through *BCIRA 36:* 462 (1956).

With reference to the four regularity testers: Uster, Fielden, Vieluba, and Testext, the author examines briefly the principles on which the mechanism of the testers is based and discusses the general data which can be obtained from the tests carried out at each stage of manufacture.

Interpretation of irregularity diagrams.

A. Barella. *Rev. Ciencia Aplicada No. 48:* 34-47 (1956); *in Spanish.* Through *BCIRA 36:* 463 (1956).

Methods for determining the parameters defining roving and yarn regularity are reviewed and the geometrical representation of the mean linear deviation is examined, with reference to the interpretation of the diagrams by various methods. The integration of these diagrams by means of mechanical, optical, and electronic integrators is studied, taking into account the correction for each integrator.

A study of the Uster Dynamometer and the Scott IP-2.

D. S. Hamby and W. C. Stuckey (North Carolina State College). *Textile Research J. 26:* 717-719 (September, 1956).

Comparison of the Scott IP-2 tester and the Uster Dynamometer show an excellent over-all correlation between the two instruments. While yarn strengths using the 20-in. gauge length run slightly lower than for the 10 in. length used on the IP-2, the difference averages only 20 g. Differences in strength at various rates of loading were more pronounced.

Symposium on impact testing.

Am. Soc. for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., 1956. 170 p. $3.50.

Includes paper by H. F. Schiefer and others on *Stress-strain relationships in yarns subjected to rapid impact loading,* p. 126-140. See *TTD 12:* 351, 444 (1955).

Improved spinning of cotton by a better understanding of a major difficulty: card neps.

Bull. Inst. Textile France No. 58: 93-104 (February, 1956); *in French.* Through *BCIRA 36:* 447 (1956).

Nep formation and factors affecting it, and means of avoiding neps by the choice of cottons and machines are discussed, with reference to several instruments for measuring the tendency of cotton to nep formation (Neptometer), examining the formation of neps during all stages of processing (Neptolger), and recording graphically the striking irregularities of the yarn due to neps, leaf residues, husks, etc. (Neptel).

FABRICS E 3

The accelerotor for abrasion testing and other purposes.

H. W. Stiegler, H. E. Glidden, G. J. Mandikos, and G. R. Thompson. *Am. Dyestuff Reptr. 45:* P685-P700 (September 10, 1956).

A new instrument, the Accelerotor, and new principles have developed for extremely rapid abrasion testing and mechanical manipulation of textiles and other flexible materials. The instrument, its scope, and versatility are described, and theoretical principles are briefly discussed. Evaluation methods are indicated including percent weight loss, appearance, color loss, light transmission, and air permeability. Though dry and wet wear and laundering abrasion are given primary consideration, some other applications of the Accelerotor are mentioned: dye penetration, felting and shrinkage of wool; effect and durability of finishes; detergency; pilling; edge-wear of cuffs, collars and seams; fraying tendencies of fabrics; non-woven fabrics; paper scuffing and creasing; glass fabrics; coated fabrics; blended fabrics; automobile upholstery and seat covers; knitted fabrics; treating of leathers; etc. Photographs. Microphotographs.

Random tumble pilling tester.

E. M. Baird, L. C. Legere, and H. E. Stanley (E. I. du Pont de Nemours & Co., Inc.). *Textile Research J. 26:* 731-735 (September, 1956).

A new type of tester for pilling tendency is described in which apparel fabric specimens are tumbled inside a rubber-lined cylinder in the presence of a small amount of cotton lint. The fuzz and pills formed in this process correlate well both in amount and appearance with those formed during wear on garments from the same fabrics. Photographs. Graph.

The tearing strength of fabrics. Comparative studies of different laboratory methods.

T. Belleli and J. Kiger. *Bull. Inst. Textile France No. 58:* 7-25 (February, 1956); *in French.* Through *BCIRA 36:* 464 (1956).

Methods for testing the strength (tensile and tearing) of fabrics are reviewed, with special reference to the Grab test which has been proposed as an international standard method. All the methods were applied to 15 different fabrics, each type of test corresponding to different damages occurring in the fabrics. The classification of the fabrics varies according to the method used. The results are presented graphically and tabulated.

Relationships between tensile and bursting tests on textile fabrics.

F. Winkler. *Faserforsch. u. Textiltech. 7, No. 5:* 226-231 (1956); *in German.* Through *BCIRA 36:* 464 (1956).

By developing the Sommer formula for the elongation in the bursting test into an exponential series and reversing this series, it is possible to predict accurately, from the elongation found in the tensile test, the height of the arch to be expected in the bursting test; the bursting pressure can be determined from the tensile strength and elongation.

OTHER E 4

Report on early work on fixing standards for lightfastness.

Fastness Tests Co-ordinating Comm. *J. Soc. Dyers Colourists 72:* 431-433 (September, 1956).

Portions are reproduced of the first (1934) of the Society's reports on fastness tests, relating to the fixing of standards for lightfastness. 9 references.

Current developments in colorfastness testing in the U.S.A.

C. A. Sylvester. *Am. Dyestuff Reptr. 45:* P719-P721, P 730 (September 24, 1956).

Recommended conditions for fading lamp operation.

Light Fastness Subcommittee. *J. Soc. Dyers Colourists 72:* 369-370 (August, 1956).

Many of the discrepancies between daylight exposures and those made in fading lamps arise from differences in the effective humidity during exposure. The average value occurring during daylight exposures in the United Kingdom is 20%, and fading lamps should be adjusted to operate at this effective humidity. 4 references.

Comparison of methods for testing the fastness to gas fading of dyes on acetate.

P. Rabe and R. Dietrich (Farbenfabriken Bayer AG). *Am. Dyestuff Reptr. 45:* 737-740 (September 24, 1956).

The authors review the historical development of test methods for determining fastness to gas fading and the causes of this type of fading. They have carried out comparative tests with two types of equipment suggested by the International Organization for Standardization (ISO) and German Fastness Commission (DEK), respectively, and have quantitatively determined the generation of nitrous gases. 28 references.

INDUSTRIAL ENGINEERING F

Equipment replacement policy.

R. Bellman. *J. Soc. Industr. Appl. Math. 3, No. 3:* 133-136 (1955). Through *BCIRA 36:* 473 (1956).

By applying the functional equation technique of the theory of dynamic programming, the author deals with the problem of determining the optimal procedure for the replacement of old equipment by new.

The patrolling time, an important problem of the multiple machine attendance in the textile industry.

W. Sassmannshausen. *Z. ges. Textil-Ind. 58, Nos. 9/10:* 343-346 (1956); *in German.* Through *BCIRA 36:* 473 (1956).

Various methods for calculating the patrolling time are described, the latter being regarded as part of the total output to be taken into account both in the calculation of piece time (time for manual work plus patrol) and in the determination of the number of machines (machine time divided by time for manual work plus patrol).

Modern practice in air conditioning for textile processing.

Textile Recorder 74: 64-66, 69 (October, 1956).

The specific improvements possible in processing yarns and fabrics under conditions of controlled temperature and humidity are pointed out, and the air conditioning layout at the Windley and Co., Ltd. plant (throwsters) is described. Diagram. Photographs.

MACHINERY AND MAINTENANCE F 1

Preventive machinery maintenance and its value to management.

M. A. Hauser. *Can. Textile J. 73:* 59-63 (September 21, 1956).

Efficient and economical production of quality materials requires a preventive machinery maintenance program. The application of such a program to the weave room is used as an example.

Is the mill built just six years ago already obsolete?

A. L. Landau. *Textile Bull. 82:* 142-145 (September, 1956).

The author points out that the increased tempo of mechanical progress, bringing more rapid obsolescence, demands a re-evaluation of cost determinations to allow for amortization, more exacting maintenance, and more quality control.

Electricity in the textile industries.

W. E. Swale. London, National Trade Press, Ltd., 1956. 244 p. $2.20.

This book describes the principles involved in the generation and distribution of electricity, and the means by which it is applied to the mill or factory. More importance is attached to economic factors than to technical details, and it is written for those who use electricity in the spinning, weaving, and finishing of natural fibers.

SCIENCES G

CHEMISTRY G 1

Periodate oxidation of cellulose and formaldehyde-treated cellulose.

M. Karrholm (Swedish Inst. for Textile Research). *J. Textile Inst. 47:* T453-T463 (September, 1956).

Experiments were performed on the kinetics of the periodate oxidation of viscose rayon cellulose and formaldehyde-treated viscose rayon cellulose. There was no positive evidence that the Malaprade stage of the oxidation could be resolved into faster and slower reactions corresponding to the oxidation of more and less accessible regions, respectively. The extent of Malaprade oxidation of the formaldehyde-treated samples is considerably lower than the theoretical minimum value, indicating that all the free glycol groups are not accessible to the periodate. The diffusion constant of the periodate ion was calculated, applying a method worked out by Olofsson (see following abstract) for diffusion in fibers coupled with irreversible absorption or rapid reaction. Tables. Graphs. 18 references.

A method of calculating diffusion in fibers coupled with irreversible adsorption or rapid reaction.

B. Olofsson (Swedish Inst. for Textile Research). *J. Textile Inst. 47:* T464-T476 (September, 1956).

The problem of calculating diffusion constants in a fiber as the diffusing substance is irreversibly adsorbed or reacts with the fiber phase is discussed. An iteration procedure is applied for the boundary condition of constancy of the total amount of active substance and this is applied to the periodate consumption of cellulose. From the results, a direct method of calculation is developed for the alternative boundary conditions of constant amount and constant external concentration of reactive substance. The method is compared with previous theoretical work regarding applicability and the principal results. Graphs. 10 references.

Some treatments that render fibroin insoluble in cupri-ethylenediamine, and sericin insoluble in hot soap solution.

C. J. Cadwallader and S. G. Smith (Shirley Inst.). *J. Textile Inst. 47:* T489-T496 (September, 1956); *Shirley Inst. Mem. 29:* 87-94 (June, 1956).

It is shown that treatments with nitrous acid, formaldehyde, hypochlorite solutions, and light will insolubilize the silk proteins. Fibroin can also be made insoluble by impregnation with caustic soda followed by heating, but this treatment does not make sericin insoluble. Explanations are advanced, where possible, of the insolubilizing effect of these treatments. 14 references.

Effect of crystallinity on the properties of nylons.

H. W. Starkweather, Jr. and others (E. I. du Pont de Nemours and Co., Inc.). *J. Polymer Sci. 21:* 189-204 (August, 1956).

Increasing the degree of crystallization of unoriented 66 or 610 nylon by thermal treatment increases the stiffness, yield point, tensile strength, and hardness, but reduces the impact strength, particularly in the high crystallinity range. The impact strength was increased by increasing the molecular weight, but the other properties were substantially unchanged. The effect of varying water content was independent of the effect of varying crystallinity, and generally acts in the opposite direction. Tables. Graphs. Microphotographs. 9 references.

A study of the photochemistry of dyes on proteins and other substrates.

J. W. Cumming, C. H. Giles, and A. E. McEachran. *J. Soc. Dyers Colourists 72:* 373-381 (August, 1956).

The rates of oxidation and of reduction in aqueous solution, and of fading in films of a typical protein (gelatin) and a typical non-protein (methylethylcellulose), have been determined for several series of dyes of different chemical classes. It is concluded that the photodegradation of a dye may follow either of the alternative mechanisms of oxidation or reduction, but normally oxidation occurs more readily on all non-proteins and reduction on proteins. In photochemical oxidation of dyes on non-proteins the substrate does not necessarily take part directly, but in reduction on proteins some constituent of the protein itself appears to act as the reducing agent, probably the histidine side-chains. Tables. Graphs. 14 references.

PHYSICS G 2

Deposition of water droplets on the solid surface.

T. Uematu, T. Kano, K. Takizawa and M. Matuura (Osaka University). *J. Textile Machinery Soc. Japan 2:* 49-50 (April, 1956).

Theoretical formulas and experimental results on the deposition efficiency of droplets in the air flow past a circular cylinder or a flat plate are given. The experimental data nearly agree with the theoretical values within the limits of the errors of measurement.

BIOLOGY G 3

Cutaneous toxicity evaluation of fabrics impregnated with anti-mildew agents.

M. V. Shelanski and C. Josephs. Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, 1955. 17 p. WADC technical report 55-198.

Fabrics impregnated with certain anti-mildew agents and fabrics altered by the acetylation process or by the cyanoethylation process were studied. The patch test studies with laboratory animals indicated that all materials were non-irritating. On humans, however, those fabrics impregnated with halogen substituted dinitrobenzenes elicited many strong reactions as evidence of primary irritation.

MISCELLANY H

Review of textile progress. Volume 6, 1954.

Textile Institute, 10 Blackfriars Street, Manchester 3, England, 1956. 586 p. $5.50.

Summary of advances during 1954 in physics and chemistry of fibers, fiber production, yarn processing, fabric production, dyeing, finishing, testing, laundering and dry-cleaning, building and engineering, and industrial applications of textiles. Extensive literature references.

Textile Recorder annual book of the year.

Harlequin Press Ltd., Manchester, England, 1956. 208 p.

A review of 1955 in the British textile industry, including economics, technology, machinery, trends in research, raw materials and statistics.

Cotton textiles: an over-capacity industry?

W. E. Clark. *Am. Dyestuff Reptr. 45:* P410-P412, P415 (June 18, 1956).

An evaluation of the factors causing over-capacity and an examination of past, present, and future aspects.

New paper products in competition with textiles.

R. B. Hobbs (National Bureau of Standards). *Am. Dyestuff Reptr. 45:* P479-P481, P483 (July 16, 1956).

Paper products in competition with textiles are grouped in six categories: packaging and packing, sanitary papers, food service, hospital and medical supplies, clothing, and industrial-miscellaneous. Physical and performance characteristics of the products are discussed, and some information on amount and growth of production is given. Basic factors favorable to growth of the paper industry are said to include low cost of product, availability of raw material, new product development, and process engineering. The importance of research in developing a strong competitive position is stressed.

How your patent in control is processed.

L. E. Slater. *Control Eng. 3:* 65-71 (August, 1956).

Questions about how an invention is processed in the patent office are answered by looking at: how it goes through the office; who the people are who handle it; what the processing problems are; and how these problems will be solved.

Research in the small mill.

W. A. Newell (School of Textiles, North Carolina State College). *Textile Bull. 82:* 64-76 (July, 1956).

Textiles.

N. Hollen and J. Saddler. Macmillam Co., 60 Fifth Avenue, New York 11, N. Y., 1955. 197 p. $5.00.

This elementary text for the use of college students includes material on the selection, use, and care of textiles, with emphasis on the properties affecting their use and care, and on finishing treatments. Manufacturing processes are included briefly. Photographs. Diagrams.

Today's cotton research in tomorrow's mills.

E. W. Bringle (National Cotton Council). *Textile Bull. 82:* 53-58 (August, 1956).

Research trends in breeding, testing, and baling cotton, and in mill processing through drawing are discussed. Photographs. Diagrams.

Cotton and man-made fibers can help each other.

R. C. Shook (Textile Distributors Institute, Inc.). *Modern Textiles Mag. 37:* 57-58, 61 (August, 1956).

It is pointed out that, since no one fiber can answer all purposes, the textile and apparel industries would do better to cooperate in their competition with rival consumer goods producers rather than advertise one fiber at the expense of another.

Proceedings, Spring meeting, 1956.

Southern Textile Methods and Standards Assoc., Clemson, S. C., 1956.

Conventional and newer methods in ends down and loom stop testing, by N. L. Enrick; *Psychology in industry,* by W. McGeHee; *Interference,* by F. O'Conner; *Interference calculations,* by J. D. Miller; *Determination of end breakage by tour inspection,* by W. S. Smith. Discussion on each paper has been transcribed and is included in the report.

Human relations in the industrial southeast.

G. Gilman. University of North Carolina Press, Chapel Hill, N. C., 1956. 327 p. $5.00.

A socio-psychological study of the emergence and growth of cotton textile mills in the southern Piedmont region viewed as a social movement rather than an economic development.

Dictionary: Italian-English, English-Italian of technical and commercial terms used in the cotton industry. (Dizionarietto: Italiano-Inglese, Inglese-Italiano dei termini tecnici e commerciali di uso piu comune nell'industria cotoniera).

Istituto Cotoniero Italiano, Rome, 1955. 137 p.

Books about textiles: a classified list of recently published works.

A. F. Kertess. *Dyer 116:* 116-118 (July 20, 1956).

Women's opinions of cotton and other fibers in selected items of clothing.

E. S. Hochstim. Wash., U. S. Agricultural Marketing Service, 1956. 118 p. Marketing research report no. 112. Available from Superintendent of Documents, Washington 25, D. C. 60¢.

Consumer attitudes on 15 items of clothing are surveyed.

Textile World 1956-1957 fact file.

Textile World 106, No. 9M: 1-354 (Mid-September, 1956).

The data is divided into the following categories: general; cotton; wool; synthetics; knitting; bleaching, dyeing, and finishing; engineering and maintenance. A buyer's guide with a classified list of companies supplying the textile industry is included. Since an attempt has been made to avoid duplication of reference material, this issue should be used in conjunction with the 1955-56 fact file.

Plastics.

R. B. Seymour. *Ind. Eng. Chem. 48:* 1760-1774 (September, 1956).

A review of the literature for the past year. 387 references.

1st International Congress of Man-Made Textiles, 1954.

International Rayon and Synthetic Fibres Committee, Paris, 1954. 547 p. $8.60.

Proceedings of the economic and technical sessions of the Congress, as well as reports on recent developments in the man-made fiber industries of the 20 participating countries, in both French and English.

Industrial textiles suppliers' directory.

Daily News Record No. 184: 16-32 (September 20, 1956).

Knitting Machinery Exhibition, Leicester.

Skinner's Silk & Rayon Record 30: 920-922 (September, 1956); *Textile Recorder 74:* 97-128 (October, 1956).

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

FIBERS A

NATURAL FIBERS A 1

Restoration of moisture to seedcotton.

E. A. Harrell. USP 2 764 013, September 25, 1956.

Pressure nozzle sprays employing chemical wetting agent solutions of fog mists of water or other fluids for moisture restoration to excessively dry seedcotton.

YARN PRODUCTION B

Means for removing dust and small fibers from gassed yarns.

C. Holiday (to Joseph Stubbs Ltd). BP 741 144, November 30, 1955. Through *BCIRA 36:* 481 (1956).

Crimping textile fibers.

C. W. Sammons, G. E. Mortimer and J. W. Fisher (to British Celanese Ltd.). USP 2 763 898, September 25, 1956.

Fibers are subjected to crimping pressure in a confined passage while they are hot to increase the permanence and/or the intensity of the crimp imparted to them.

CARDING AND COMBING B 2

Combing and/or blending fibers.

J. E. Vivian. USP 2 762 081, September 11, 1956.

Method of combing fibers in which the fibers are suspended in a flowing stream of liquid while being loosened and separated.

DRAWING AND ROVING B 3

Weight-relieving machine for the detaching rollers of a comber or for top drafting rollers.

A. W. Stafford (to T.M.M. (Research) Ltd). BP 740 725, November 16, 1955. Through *BCIRA 36:* 448 (1956).

Sliver or roving condenser for insertion between drafting roller pairs.

W. A. Hunter (to T.M.M. (Research) Ltd). BP 740 910, November 23, 1955. Through *BCIRA 36:* 480 (1956).

Roving frame control.

C. R. Harris (to Pneumafil Corp.). USP Reissue 24 212, September 11, 1956. Original No. 2 704 430, March 22, 1955.

Means for stopping operations when a roving is broken, and safely resuming operations after the broken roving has been pieced up.

Drawing machinery.

R. Lepoutre (France). USP 2 761 179, September 4, 1956.

A drawing system, free from the disadvantages of systems having screws and fallers, or gill-boxes, comprises between the feeding and drawing cylinders a lower and upper set of porcupine rollers, whose needles intermesh with preceding and succeeding rollers.

Top rolls for spinning and preparatory machinery.

J. Noguera (to Casablancas High Draft Co. Ltd). USP 2 762 083, September 11, 1956.

Top roller having a detachable roller boss axially bored to receive a central arbor and two separate spring members so spaced by mutual abutment to permit insertion of the arbor between them.

Distribution of pressure between a pair of pressure rollers.

A. Varga and F. T. Stott (to Carding Specialists (Canada) Ltd). USP 2 762 295, September 11, 1956.

An arrangement of pressure rollers in which, using cylindrical or uncambered rollers, the rollers remain in contact throughout their entire length, as long as the load applied between them remains constant.

Textile cot.

J. Rockoff (to Dayton Rubber Co.). USP 2 763 033, September 18, 1956.

Textile roll cover or cot, which eliminates eyebrowing and lapping up of fibers due to the incorporation of either polyvinyl alcohol or ground up shells in the oil-resistant synthetic rubber-like material of which it is made.

Stop mechanism for drawing machines.

J. P. Mackie (to James Mackie & Sons Ltd). USP 2 763 034, 035, September 18, 1956.

Stop mechanism for drawing frames brought into play by a pivoted detector as soon as the speed of the sliver falls below a certain critical value, determined for a particular set of circumstances.

SPINNING, WINDING, TWISTING B 4

Simple form of spindle that runs without vibration.

J. S. Roch (Spain). BP 740 029, November 9, 1955. Through *BCIRA 36:* 449 (1956).

Tools for placing ring travelers on rings of ring spinning or twisting machines.

W. Reiners and S. Fürst (Germany). BP 740 116, November 9, 1955. Through *BCIRA 36:* 449 (1956).

Drafting aprons.

G. E. Watts, S. B. Hainsworth, and F. Bentley (to Resilla Cots & Rollers Ltd). BP 740 504, November 16, 1955. Through *BCIRA 36:* 448 (1956).

Double-twist throwing spindle mechanisms.

Soc. d'Etudes et de Recherches de Materiel Textiles. BP 740 730, November 16, 1955. Through *BCIRA 36:* 449 (1956).

Drafting apron drive.

K. Ward (to Fairbairn Lawson Combe Barbour Ltd). BP 740 859, November 23, 1955. Through *BCIRA 36:* 481 (1956).

Spindles for spinning and twisting frames.

T. Nesbitt-Dufort, F. Hunter and J. Keenan (to Fairbairn Lawson Combe Barbour Ltd). BP 740 882, November 23, 1955. Through *BCIRA 36:* 481 (1956).

Bobbin stripper.

E. A. Terrell and G. D. Hoyle, Jr. (to Terrell Machine Co.). USP 2 761 194, September 4, 1956.

Stripping jaws characterized by gripping faces that are rigid and have transverse grooves at spaced intervals over their entire length to ease the removal of the bobbin from the waste yarn windings.

Yarn package holder.

R. J. Clarkson (to United States Rubber Co.). USP 2 761 632, September 4, 1956.

Holder for yarn packages to facilitate fast and easy creeling, which will operate at any angle.

Weighting top rolls.

H. Ude (to Schiess AG). USP 2 762 082, September 11, 1956.

Weighting device for top drafting rolls of spinning-machines which allows the roller to be given any degree of loading pressure without unduly stressing the lower roll, and makes use of the lower roll itself to fix the position of the top roll.

Plastic bobbin.

E. C. Scanlon. USP 2 762 580, September 11, 1956.

Bobbin having a nylon bearing, plastic spool heads, and a metal core which prevents distortion and displacement of the spool heads.

Winding-bobbin carrier frame.

W. Lenk (Germany). USP 2 762 582, September 11, 1956.

Arrangement of winding bobbin carrier frames in the winding machine, so that for exchanging bobbins the carrier frame can be removed from the winding machine by one hand, and the threads on the bobbin will not come in contact with the operator's hands.

Twisting spindle tension device.

W. Lenk (to Barmer Maschinenfabrik AG). USP 2 762 583, September 11, 1956.

Polyamide yarn tension device for twisting spindles, especially of the cabling type, which guarantees a correct drawing of the yarn to be twisted, and imparts to the thread a small and uniform tension.

Cutting a thread end from a spool.

K. Lingen (Germany). USP 2 763 323, September 18, 1956.

Device for automatically cutting a thread end from a spool used in automatic spinning machines, and automatically moving the spool to another position after the thread end has been severed.

Automatic bobbin winding machine.

W. V. Goodhue and R. E. Morton (to Universal Winding Co.). USP 2 763 443, September 18, 1956.

Automatic winding machine for producing weft or filling bobbins built into a loom for operation in conjunction with the weaving mechanism.

Bobbin with tail-tie gudgeon.

L. F. Burlein (to Cloverleaf-Freeland Corp.). USP 2 763 444, September 18, 1956.

Winding machine guide.

R. G. Hilbert (to Universal Winding Co.). USP 2 763 445, September 18, 1956.

Adjustably mounting a yarn guide upon a reciprocating member in the winding machine.

Timing system for producing slub yarn.

J. A. Bradshaw (to J. P. Stevens & Co., Inc.). USP 2 763 819, September 18, 1956.

Slubbing mechanism by which the required drafting roll speed changes can be effected precisely and smoothly by use of a solenoid actuated clutch to control the speed change elements.

Spindle drives for spinning and twisting machine.

W. Burkhardt (Germany). USP 2 763 980, September 25, 1956.

Drive for the spindles of spinning and twisting machine enabling the spindles to be turned in clockwise and counterclockwise rotation without reversing gears.

Winding machine.

W. V. Goodhue and F. W. Higgins (to Universal Winding Co.). USP 2 764 362, September 25, 1956.

Automatic winding machine adapted to be assembled in multiple, with each unit having an automatic end-finding and knot-tying means.

Traverse mechanism.

E. Stammwitz (Germany). USP 2 764 363, September 25, 1956.

Through the use of a universal reversing gear it is possible, by changing differently shaped and differently moved stroke limiting stops, to change from one kind of winding to another.

Cone winding.

H. Halkyard and W. J. Fisher (to British Celanese Ltd.). USP 2 764 368, September 25, 1956.

Winding cones of artificial continuous filament yarn, so that each layer of yarn extending from the small to the large end of the cone has a smaller angle of wrap round the axis of the package than the adjoining layers of yarn extending in the opposite direction.

FABRIC PRODUCTION C

Yarn clearer.

S. Furst (to Walter Reiners). USP 2 763 913, September 25, 1956.

Thread clearer adjustable for cleaning threads of all different types and sizes, and preventing the thread from accumulating excessively at the gap through which it moves.

WARPING, SLASHING. YARN PREPARATION C 1

Knotting devices.

D. N. Cook (to Cook & Co. (Manchester) Ltd). BP 740 501, November 16, 1955. Through *BCIRA 36:* 453 (1956).

Yarn winding machines in which full packages are automatically exchanged and broken ends automatically pieced up.

W. Reiners (Germany). BP 740 685, 740 686, and 740 687, November 16, 1955. Through *BCIRA 36:* 453 (1956).

Instrument for testing a size mixing.

Gebruder Sücker GmbH. BP 740 922, November 23, 1955. Through *BCIRA 36:* 484 (1956).

Means for feeding pirns to winding machines with traveling spindles.

J. Fitzgerald (to Thomas Holt Ltd). BP 740 966, November 23, 1955. Through *BCIRA 36:* 483 (1956).

Yarn winding in which the package is driven by surface contact with a drum or roller moving at constant linear speed.

H. Halkyard (to British Celanese Ltd). BP 741 095, November 23, 1955. Through *BCIRA 36:* 483 (1956).

Hand-operated knotters for yarns and the like.

D. N. Cook (to Cook & Co. (Manchester) Ltd). BP 741 197, November 30, 1955. Through *BCIRA 36:* 483 (1956).

Packing wound packages into boxes provided with grid-like partitions.

Vyvoj Tvarecich Stroju, Nar. Pod. BP 741 208, November 30, 1955. Through *BCIRA 36:* 484 (1956).

Means for feeding pirns to rotary traversing winding machines.

J. Fitzgerald (to Thomas Holt Ltd). BP 741 283, November 30, 1955. Through *BCIRA 36:* 484 (1956).

Automatic means for doffing a full package from a winding machine.

Rawson & Sons Ltd. BP 741 318, November 30, 1955. Through *BCIRA 36:* 484 (1956).

Inching control for warpers.

R. W. Andres and F. L. Townsend (to Barber-Colman Co.). USP 2 762 107, September 11, 1956.

Mechanism which manually controls the turning of the beam so that it may be inched around when looking for the end of a broken thread, and which is always accessible to the operator.

Heated cover for slasher size box.

I. L. Griffin. USP 2 763 912, September 25, 1956.

Cover for size box incorporating a heating element which is periodically actuated to keep the cover sufficiently hot to prevent formation of condensation at the egress opening.

WEAVING C 2

Warp beam brake.

O. Kurtz and H. Kurtz (Germany). BP 739 714, November 2, 1955. Through *BCIRA 36:* 454 (1956).

Hydraulic buffer for looms for braking the picking stick.

A. E. Zarn (Switzerland). BP 739 874, November 2, 1955. Through *BCIRA 36:* 453 (1956).

Double-lift jacquards.

Soc. des Mécaniques Verdol. BP 740 202, November 9, 1955. Through *BCIRA 36:* 454 (1956).

Automatic cop-changing loom of the magazine type.

D. D. Young and J. Robinson (to Urquhart Lindsay & Robertson Orchar Ltd). BP 740 355, November 9, 1955. Through *BCIRA 36:* 453 (1956).

Looms with plastic shuttle boxes.

maschinenfabrik Schwenningen GmbH. BP machinenfabrik Schwenningen GmbH. BP 740 578, November 16, 1955. Through *BCIRA 36:* 453 (1956).

Heddles.

Grob & Co. AG. BP 740 771, November 16, 1955. Through *BCIRA 36:* 454 (1956).

Device for catching the weft in an automatic bobbin-change, multiple box loom.

F. Beaumont and E. Gledhill. BP 740 833, November 23, 1955. Through *BCIRA 36:* 485 (1956).

Threading yarns through tube-frames in spool-Axminster carpet weaving.

J. G. G. Wilkinson (to Boucher & Co. Ltd). BP 741 023, November 23, 1955. Through *BCIRA 36:* 485 (1956).

Tappet shedding motions in looms.

C. C. Bodel and E. J. F. Hodgett (to Linen Industry Research Assoc.). BP 741 091, November 23, 1955. Through *BCIRA 36:* 485 (1956).

Pirns, bobbins.

A. W. Bayes (to Ashton Bros. & Co. Ltd). BP 741 316, November 30, 1955. Through *BCIRA 36:* 483 (1956).

Pile wire inserting mechanisms in pile fabric looms.

O. Jansen (to T. A. Gusken). BP 741 540, December 7, 1955. Through *BCIRA 36:* 485 (1956).

Circular looms.

Soc. d'Applications Générales d'Electricité et de Mécanique. BP 741 715, December 7, 1955. Through *BCIRA 36:* 484 (1956).

Threading device for loom shuttles.

R. N. Walls (to T. C. Keay Ltd). BP 741 996, December 14, 1955. Through *BCIRA 36:* 485 (1956).

Multiple box looms.

J. F. Moseley, I. H. Thomas and J. J. Vincent (to British Cotton Industry Research Assoc.). USP 2 762 399, September 11, 1956.

Controlling the shuttle trails in a multiple box loom by means of a suction device between the selvage and the entrance to the multiple shuttle box.

Shuttle box mechanism for four color loom.

T. Ciarloni (to Ateliers de Construction de Ruti SA). USP 2 762 400, September 11, 1956.

Four color loom on both sides of which are mounted four boxes for receiving the corresponding shuttles, with means for automatically changing spent shuttles.

Bobbin ejection.

J. O. Jennings. USP 2 762 401, September 11, 1956.

Bobbin guide extension for a loom which will positively guide ejected bobbins into the receptacle provided, even though the bobbin change operation is improperly carried out.

Shuttle checking.

T. P. Bostic. USP 2 763 295, September 18, 1956.

Checking or frictionally retarding the incoming shuttle to produce a smoother retarding action.

Reversible spindle guided picker.

W. Ledoux. USP 2 764 186, September 25, 1956.

Spindle guided picker which is reversible, so that an opposite end of the shuttle bunter portion can be used when the end first used becomes worn.

Tension and let-off device.

F. W. Brey (to Fieldcrest Mills, Inc.). USP 2 764 367, September 25, 1956.

Tension and let-off device for creel fed loom, interposed between each of a plurality of yarn sources and a take-up means, and centrally controlled for maintaining a uniform tension and slack-free condition in the yarn.

KNITTING C 3

Circular knitting machine for the manufacture of hosiery and knitted fabrics without warp threads.

M. Nebel (Germany). USP 2 761 302, September 4, 1956.

Circular knitting machine for making variable striped loop cloth.

R. S. Steinberg. USP 2 762 212, September 11, 1956.

A variable striped loop cloth may be made on a circular knitting machine equipped with a plurality of striping boxes utilized to shift the color of the loop thread, according to a predetermined and desired cloth pattern.

Jack sinker for full fashioned knitting machine.

K. Howie (to Wildman Mfg. Co.). USP 2 762 214, September 11, 1956.

Hosiery machine.

P. W. Bristow (to Scott & Williams, Inc.). USP 2 763 144, September 18, 1956.

Knitting machine capable of knitting a two feed top and/or a two feed leg consistently with the provision of a press-off draw thread and one or more welts connecting successive stockings.

Hosiery machine tension device.

E. St. Pierre (to Hemphill Co.). USP 2 763 145, September 18, 1956.

Fabric tensioning device or toe pocket pusher for circular, independent needle knitting machines.

Removable and replaceable dial or cylinder needle selection attachment for a circular, latch needle knitting machine.

R. H. Lawson and J. B. Lawson (to Lawson Products, Inc.). USP 2 764 006, September 25, 1956.

Retarding the backing thread carrier of a straight-bar knitting machine.

S. A. Monk (England). USP 2 764 007, September 25, 1956.

FABRICS C 4

Tubular braided fabric.

A. Crossley and H. M. Crossley. BP 738 078, October 5, 1955. Through *BCIRA 36:* 365 (1956).

Method for the production of a patterned double woven pile fabric having floating pile threads.

Koninklijke Vereenigde Tapijtfabrieken N. V. BP 738 243, October 12, 1955. Through *BCIRA 36:* 365 (1956).

Pile fabrics with at least two yarns differing so slightly in shade that at normal viewing distance the fabric appears to be of one shade.

Gehrs. van den Bergh's Koninklijke Fabrieken. BP 740 605, November 16, 1955. Through *BCIRA 36:* 454 (1956).

Fused fabric assemblies.

L. Bihaly (to Trubenised (Gt. Britain) Ltd). BP 740 887, November 23, 1955. Through *BCIRA 36:* 485 (1956).

Fused fabric assemblies.

L. Bihaly (to Trubenised (Gt. Britain) Ltd). BP 741 224, November 30, 1955. Through *BCIRA 36:* 486 (1956).

Elastic mat for upholstery consisting of individually crimped artificially cellulosic filaments.

J. Buchkremer and H. Sonnenschein (to American Enka Corp.). USP 2 753 286, July 3, 1956.

Pile carpets.

H. G. Lustig. USP 2 753 820, July 10, 1956.

Stitching device for forming either looped-pile or cut-pile carpeting.

Elastic fabrics.

R. Grosser. USP 2 753 896, July 10, 1956.

Weaving a large variety of stable elastic patterns by varying the ratio of regular to double loup twisted warps, and by interposing inelastic between elastic weft threads in varying degrees.

Pile carpets.

F. P. Groat (to Magee Carpet Co.). USP 2 754 578, July 17, 1956.

Carpets woven of non-thermoplastic yarns, together with twisted yarn strands composed of thermoplastic and non-thermoplastic fibers, are heated so that the thermoplastic twisted yarn strands will shrink to reduce their height and produce a high and low pile surface.

Stiffened woven fabric.

W. F. Foley (to Ansonia Mills Inc.). USP 2 754 855, July 17, 1956.

Stiffened woven fabric for foundation garments may be produced on automatic loom by using bundles of picks extending weft-wise of a fabric to act as stiffeners, these picks being of a weight equal to the weight of the other picks comprising the ground of the fabric.

Pile fabric.

F. W. Mostertz. USP 2 764 185, September 25, 1956.

Frieze pile fabrics are produced by weaving the pile of non-metallic and metallic fibers, and crushing the metallic pile loops so that they are permanently deformed and remain at a level below the non-metallic pile.

FINISHING AND CHEMICAL PROCESSING D

CHEMICAL PROCESSES D 1

Process for bleaching vegetable fibers.

Soc. anon. Geeraert and Matthys Frères. BP 739 810, November 2, 1955. Through *BCIRA 36:* 459 (1956).

Calender or mangle bowl mounted on a hollow and perforated shaft.

N. J. Bellis, S. Bellis, and R. Bellis (to Richard Hough Ltd). BP 740 769, November 16, 1955. Through *BCIRA 36:* 460 (1956).

Heat treatment of fibrous material.

F. G. R. Magnusson (to A B Svenska Flaktfabriken). USP 2 761 658, September 4, 1956.

Apparatus for the heat treatment of fibrous piece-like material having a tendency to be lumpy, e.g., carboxymethycellulose (cellufix), which permits even distribution of the material between the confronting faces of the inner and outer drums.

Softening agents.

J. J. Carnes (to Am. Cyanamid Co.). USP 2 761 795, September 4, 1956.

Heat-stable, non-yellowing softening agents for cotton and rayon during hot-finishing treatments comprising polyesters of sulfosuccinic acid.

Conditioning and tensioning filaments.

W. Whitehead (to Celanese Corp.). USP 2 762 330, September 11, 1956.

Simultaneously tensioning and applying a conditioning agent to a filament by passing it through a mass of rotatable elements, such as spherical balls, pellets, etc., on which the conditioning agent is sprayed or dripped.

Scouring wool with non-ionic detergents.

T. N. Crowley (to American Chemical Paint Co.). USP 2 762 681, September 11, 1956.

Scouring wool by washing it in an aqueous bath containing a non-ionic, synthetic, organic surface active agent, collecting the liquid effluent, adding alum to effect flocculation, and returning the clarified liquid for reuse in scouring.

Resin finishing rayon.

J. K. Simons (to Quaker Chemical Products Corp.). USP 2 763 578, September 18, 1956.

Imparting ribbon and taffeta finishes to cellulose acetate and regenerated cellulose by impregnation with an interpolmer of vinyl acetate, acrylic acid, and methyl acrylate.

Creaseproofing.

G. H. Woods, Jr. (to Joseph Bancroft & Sons Co.). USP 2 763 914, September 25, 1956.

Creaseproofing process which eliminates the use of caustic treatment so that the shrinkage may be reduced or almost eliminated.

Continuous web treating apparatus.

G. W. Sarti. USP 2 764 009, September 25, 1956.

Apparatus for dyeing, sizing, or otherwise treating a continuous moving web while advancing the cloth under a minimum of tension, using a minimum of treating solution, and maintaining

the liquid at the predetermined constant temperature.

Wet finishing machinery.

S. H. Williams (to General Aniline & Film Corp.). USP 2 764 010, September 25, 1956.

Apparatus for the continuous fluid treatment of a rapidly moving continuous web of fabric in which definite critical fluid areas are provided to maintain maximum penetration of the fabric.

DYEING AND PRINTING D 2

Printing pastes.

H. Kleiner, O. Bayer, and B. Becht (to Farbenfabriken Bayer AG). USP 2 762 718, 719, September 11, 1956.

Printing paste containing, as film-forming compositions, resinous polyamines soluble in the printing paste, which become insoluble by alkaline aftertreatment or heating in the presence of cross-linking agents, assuring a fixation fast to washing, acids, and alkalies.

Dyeing nitrogenous fibers with metallizable wool dyestuffs.

O. Albrecht, J. Meyer, F. Schuetz, and H. Roesti (to Ciba Ltd). USP 2 763 529, 530, September 18, 1956.

Dyeing wool (particularly loose wool), silk, and synthetic fibers prepared from casein or polyamide or polyurethane fibers with metallizable dyestuffs by the single-bath metallizing process in a dyebath containing polyglycol ethers to increase the absorptive capacity of the dyestuffs.

Dyeing wool-acrylonitrile blends.

L. Bidgood, Jr. (to E. I. du Pont de Nemours & Co.). USP 2 764 466, September 25, 1956.

Process for preferentially applying basic color to the acrylonitrile polymer in a wool blend without staining the wool.

Inhibiting acid fading.

V. S. Salvin and A. B. Conciatori (to Celanese Corp.). USP 2 764 467, September 25, 1956.

Treatment of cellulose acetate or other cellulose derivatives with triazines, during the dyeing process, to improve their resistance to acid fading.

MECHANICAL PROCESSES D 3

Fabric folding mechanism for automatic cloth laying-up machine.

N. Obedin. USP 2 761 675, September 4, 1956.

DRYING D

Tension controlling means for fabric dr ing machines.

G. H. Langley. BP 738 983, October 26, 19 Through *BCIRA 36:* 391 (1956).

Drying and conditioning of fibrous ethe of cellulose as a batch process.

F. G. R. Magnusson (to Akt. Svenska Fla fabriken). BP 739 025, October 26, 19 Through *BCIRA 36:* 392 (1956).

Rollers for conveying cloth past nozzl that discharge gaseous fluid.

J. Dungler. BP 739 108, October 26, 19 Through *BCIRA 36:* 391 (1956).

Methods and apparatus for fixing fabr webs on the pins of tenter frames.

A. Meier-Windhorst (Germany). BP 7 931, November 2, 1955. Through *BCIRA 3* 460 (1956).

Apparatus for drying textile packages.

Soc. de la Viscose Suisse. BP 740 146, N vember 9, 1955. Through *BCIRA 36:* 46 (1956).

Drying loose fibrous materials.

H. Fleissner (to Firma Fleissner & Sohn) USP 2 755 513, July 24, 1956.

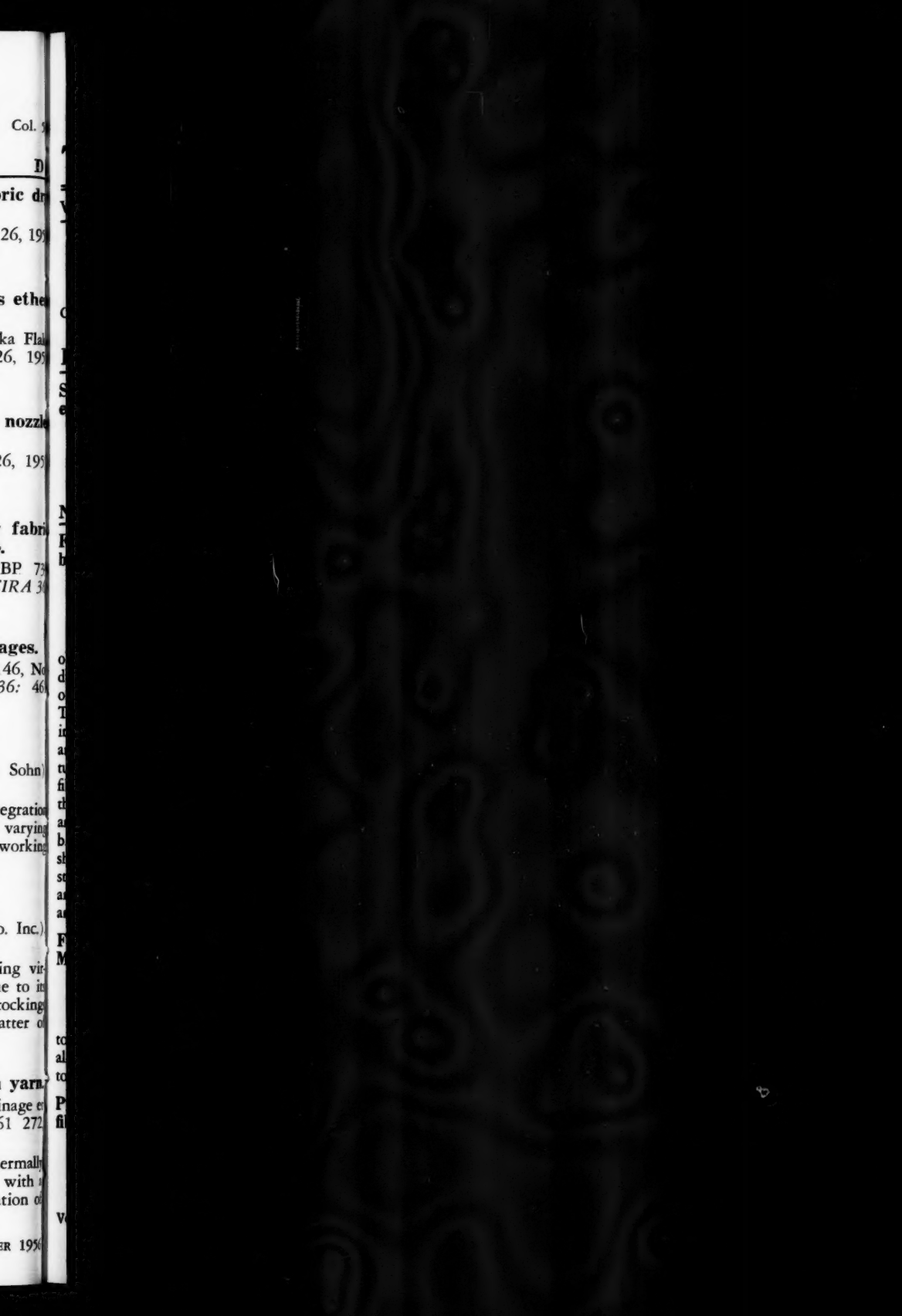
Apparatus for the continuous disintegratio and drying of fibers in which materials of varyin moisture content can be dried under even workin conditions.

Hosiery boarding.

J. C. Berry (to Process Machinery Co. Inc.) USP 2 761 221, September 4, 1956.

Hosiery conditioning machine imparting vi tually no heat to the surrounding area due to i continuous dry heat zone in which the stockin reach a plasticizing temperature in a matter o seconds.

Apparatus for setting false twist in yarn.

L. Vandamme and L. Rouyer (to Moulinage e Retorderie de Chavanoz). USP 2 761 27 September 4, 1956.

Apparatus for setting false twist thermall and in a dry state by contacting the yarn with hollow plate heated by the internal circulation o a hot fluid.